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HYMENOPTERA OF THE NEW HEBRIDES AND BANKS ISLANDS

By L. Evelyn Cheesman, F.Z.S.

[Read 20th November, 1935.]

The insects described below form part of a collection made by myself during an expedition to the New Hebrides in 1929 and 1930. Grants in aid of the expenses of the expedition were made by the Trustees of the British Museum (Nat. Hist.); the Trustees of the Percy Sladen Trust; and by the Royal Society. All material has been presented to the British Museum (Nat. Hist.).

The Archipelago of the New Hebrides lies between Fiji and Australia, and consists of about thirty islands extending from N.W. to S.E. for 450 miles.

Santo and Malekula are thought to be of the oldest geological formation, but some islands are evidently of recent volcanic origin, and there are two active volcanoes on the group. The three southern islands present entirely different conditions; the temperature being about 10 degrees cooler. The flora and fauna are different; the forest is less dense, the soil more porous and therefore drier, and there are high, windswept plateaux.

As a group the New Hebrides offers a great variety of natural conditions, almost every type of island being represented. High islands, covered with very dense, but not lofty, tropical forest, said to be analogous to the vegetation of the Solomon Islands; rocky islands; low, flat islands either of elevated coral limestone, or coral atolls, or islands ringed with coral, or with occasional fringing reefs.

The fauna and flora are considered to be Australasian with a certain percentage of other elements. With our present inadequate knowledge even an approximate, general proportional estimate is impossible, but in all probability the basic fauna of the New Hebrides will prove to be Papuan; the term "Australasian" includes the Solomon Islands, the fauna of which appears to be Papuan with Malayan elements. In many cases where I have referred to species allied to those of the New Hebrides recorded from Australia, I found that actually they were collected in tropical Queensland, the fauna and flora of which are almost pure Papuan, the land being formerly connected with New Guinea.

The publication of the present paper was delayed expressly until I could obtain a collection of insects from the central regions of New Guinea, because in working out material from the New Hebrides, I discovered that the species had no direct affinity with Australian (except Queensland) or Malayan faunas and only indirectly with the Oriental; in many cases they belong to New Guinea genera, or groups of New Guinea species, which I suspected but could not prove from the scanty collections available.

Special interest is attached to *Henicospilus nocturnus* and *H. samoanus* which occur on the so-called oceanic islands of Samoa and the Society Islands. I took representatives of both species at 4,500 ft. in Papua; and there are specimens of *nocturnus* in the British Museum from Ceylon and Sumatra. In all probability they will be found to have an even more extensive range, and evidently belong to an older fauna. This raises the question whether we are correct in considering islands of the mid-Pacific oceanic, rather than relics of larger land masses or continents.

It is interesting also to have taken a species of *Hyptiogaster*, which is known only from Australia and South America. The genus may be far more widely represented than is supposed, for it can only be taken by sweeping, except in the pairing season, when the ♂ stations itself on a conspicuous leaf or twig near an open track and waits for the ♀. At such times they are readily seen, but as a general rule these insects need much searching for.

Twelve months were spent on the island of Malekula, the remainder of the time was divided between Erromanga, Tanna and Aneityum; with a few weeks on Santo, and also on Vanua Lava, Banks Islands.

The northern islands are densely forested; with low shores fringed with coral, some marshy areas, and small mangrove swamps at the mouths of rivers. The highest mountain of the group is a little over 6,000 ft. The climate is considered unhealthy, though the temperature is not very high, varying from about 80 to 90 degrees for the greater part of the year, and seldom falling below 70 degrees. It is the excessive moisture which sets up trying conditions; for, owing to the dense bush, fresh winds are rarely felt except on the seaboard. The air is frequently laden with volcanic dust from the active volcanoes. Dark clouds are constantly visible streaming away from Ambrym; and I have many times seen the ash lying so thickly on leaves on Santo and Malekula, that one could write one's name in it. This tends to make conditions more depressing. There is a good deal of malaria and blackwater fever. The hot, wet season lasts from December to April, but normally there is heavy rainfall all the year round.

Cultivated areas are all on the coast, but there is very little land under cultivation; and the sparse, white population inhabits the shore among cocoanut plantations. The only clearings in the interior are made by natives for their villages and gardens.

Collecting areas group themselves under the following headings:—

1. The littoral:
   (*a*) coral; (*b*) mud; (*c*) rocks; (*d*) scrub.
2. Cultivated areas.
3. Fresh-water areas:
   (*a*) banks of rivers and streams; (*b*) banks of ponds and pools; (*c*) weedy margins; (*d*) heads of streams.
4. Mountains:
   (*a*) scrub; (*b*) lofty forest; (*c*) grass.
5. Grassland:
   (*a*) sea-level; (*b*) high slopes; (*c*) tableland.
6. Rocks.

SANTO.

The largest island of the group, 45 miles wide and 75 miles long. Dr. Baker on his recent expedition proved that Mt. Tabwemasana is 6,195 ft., and that three other peaks are over 4,000 ft. There are a few fairly large rivers.

Six weeks were spent by me in the south, opposite the island of Tangowa. I encamped in the bush about four miles from the coast, and penetrated to twelve miles inland. Collections were made from sea-level to 2,000 ft.

All that coastal region, as far as five miles inland, consists of elevated coral plateaux in terraces covered in very heavy forest with open, grassy areas that have been proved favourable for cattle rearing. Under suitable weather conditions one can see six or seven of these plateaux, raised one above the other to the horizon. Collecting was good, especially at 1,000 ft. and higher.

MALEKULA.

The second largest island of the group, about 26 miles wide and 46 miles long. Very densely forested; except in the north-west, which consists entirely of coral limestone terraces. The island has probably been tilted towards the east, as is shown by reef islets along the N.E. coast. The small river Malua which flows out at Malua Bay on the N.W. has cut through the coral terraces, and as far as three miles inland (and probably farther) the banks, which are 500 ft. high in places, are of limestone. The terraces support scrubby bush, coarse, high grasses, and belts of trees.

In the heavily forested regions are occasional grass-covered areas near the coast, kept cleared by the bushmen. Very high reed-grass monopolises the ground, such as *Miscanthus japonicus* of Indo-Malayan origin which is widely distributed in the Pacific. There are no large rivers, and comparatively few streams. The interior consists of broken ranges with low spurs. The two highest peaks are about 4,000 ft.

The natives are Melanesian of Papuan extraction; extremely primitive, and bound by superstitions. Carriers for inland work were difficult to hire. Cannibalism is still practised by two of the tribes, and in some parts the bushmen are distinctly hostile to white men.

Collecting localities :—Ounua on the east, at about 100 ft. above sea-level with forest, and coral shores supporting madreporic vegetation. Bush work was carried out to three miles inland and about 1,000 ft. altitude. The forest is very difficult to traverse, the most sure way of getting inland being to follow a stream, as native paths are always circuitous. Malua Bay on the N.W. with its elevated coral region; forest on the highest terrace at 2,000 ft. is in the territory of the Big Nambas tribe. Atchin Island N.E., a submerged island ringed with coral, half a mile across and a mile long; also the coast opposite where I crossed over from Malua Bay. South West Bay on the S.W. from the coast to three miles inland on the coastal hills, Mt. Villikus 3,500 ft. (?) in the centre of the island.

ERROMANGA.

Twenty-five miles wide, and 35 miles long from N.W. to S.E. This island enjoys delightful climatic conditions, with an even temperature, fresh breezes, and cool nights. There is very little malaria. Two chains of mountains cross the centre and northern part of the island, where are high elevated coral plateaux covered in good grass which supports merino sheep.

The flora of this and the next two islands mentioned below is very distinct from that of the rest of the group, the greater part of the vegetation being Australian. In the paddocks, which are burnt over annually, the only trees are *Acacia acutifolia* forming clumps and groves. The limestone area is sharply delimited from other parts of the island by a change of vegetation, consisting of high forest alternating with bracken-covered areas and small scrub.

Collecting localities :—Umbonaleamtongi, a deserted mission house kindly loaned me by the Presbyterian Mission, standing about 150 ft. above sea-level, near the coast. Nearly all the insects taken at light were from this locality. Encampments at Man-o'-war in the centre; and at Potnaravin on the east coast; also Traitor's Head, 3,500 ft.

TANNA.

Width 13 miles and length 20 miles. The greater part of the coast has a barrier reef, and there is some elevated coral inland. Hills of recent volcanic

origin occur in the centre, and a small volcano throws out scoria at intervals of a few minutes.

Collecting localities :—Isakel on the S.W., where I was given hospitality by the Government Agent, and a French official's house was placed at my disposal by the French Government. That part of the island consists of scrubby forest intersected with native gardens. Encampments near the volcano and at Lochochlev in the central, forested region.

ANEITYUM.

A small island 35 miles in circumference, consisting of a group of mountains and a narrow, coastal belt, widest at Analgahaut in the S.E.

Collecting localities :—Analgahaut on the S.E. coast, with bracken-covered slope behind, the flora and fauna of which are identical with that of Man-o'-war, Erromanga. Behind the mission house is a marshy flat recently drained. There is access to the forested mountains with Saddle Peak, 3,000 ft. Aname on the N.W. coast is on the slope of the main ridge, covered with coarse grass and sparse, short scrub.

VANUA LAVA, BANKS ISLANDS.

A high, forested island with several mountains, the highest, Taue Lava, 4,000 ft. Owing to the position of the island with its many peaks rising abruptly from the sea far from other high land, there is excessively heavy rainfall all the year round; and the main forest begins at about 1,200 ft. above sea-level. A native trail crosses the island from east to west. The forest is less dense than on the New Hebridesian islands, with much fern, moss, *Melastoma*, Tree Ferns, and other vegetation adapted to moist habitats.

Collecting localities :—Vureas, where I was loaned an empty house belonging to the Melanesian Mission. Making this my headquarters, I collected in the west and centre and climbed Taue Lava.

Apoidea.

Megachilidae.

Lithurgus scabrosus Sm. 1858, *J. Proc. linn. Soc.* (*Zool.*), **3** : 134 (Aru Is.).

L. albofimbriatus froggatti Ckll. 1914, *Ann. Mag. nat. Hist.* (8) **14** : 469. (Epi, Malekula.)

Malekula, 2 ♀♀, 6 ♂♂, ii.–v.1929. Banks Islands, Vanua Lava, 4 ♂♂, xi.1929.

Nests in dry logs, door-posts, piles, etc.

Widely distributed across the Pacific from Malaya in a S.E. direction to the Society Islands.

Parasitised by *Argyromoeba incompta* Wlkr. (Bombylidae). At South West Bay, Malekula, where many of the bees were provisioning burrows in the posts of a shed, on one morning I observed seven or more of these Bombylids. The ♂♂ settled in the neighbourhood, and waited until a ♀ hovered at the entrance of a burrow, copulation took place almost instantaneously in the air, the ♀ then entered the burrow and emerged in about a minute. The bees noticed the flies if the former returned before the latter had left, and would drive them away; and even turn back as if to make sure that the intruders had really been got rid of. It appeared as if the ♂ bees were chiefly engaged in this task, but I could not be certain on this point. After three

weeks I examined one post in which were many burrows, but no bee larvae remained, and the provisions were apparently not demolished; one full-fed dipterous larva was found inside a burrow.

I have not seen the type of *froggatti*, but have examined the two specimens from Malekula in the Australian Museum, which were compared with type by Cockerell, and I cannot find any character in which they differ from the typical form.

All characters mentioned by Cockerell in the original description are possessed by *scabrosus* Sm. I failed to find the " conspicuous patch of dark-red hair " on the 6th tergite. As in the typical form, that segment is covered by dark brown hair mixed with black, the black hair not persisting to the apex where the brown hair is dense and longer. In specimens which are rather rubbed, greasy or worn, the brown hair is less evident.

Megachile similis Sm. 1879, *New sp. Hym. B.M.*, : 66. (Aneityum, New Hebrides.)

To Smith's description of the ♀ may be added the following characters.

Hair of face dark brown, greyish on base of mandibles, and cheeks greyish. A small, round patch of lemon-yellow tomentum on mesopleura above, near the radix of fore-wing. Lateral tuft on postscutellum castaneous. Clypeus with a narrow longitudinal impunctate area and a narrower transverse impunctate stria between the foveae, triangular in the centre: clypeal margin with a small median tubercle, and tuberculately reflexed on either side of it. Punctures of mesonotum and scutellum very dense, occasional spaces between about as wide as the punctures. Scutellum subconical, the centre glabrous. Tegulae finely punctate. Abdominal tergites aciculate with minute punctures from which spring fine hairs, and coarser punctures basally and at apical margins.

♂. Hair of face pale yellow, on underside of head dirty white, on vertex and a few hairs on cheeks near margin of eyes, dark brown; on thorax cream, on disc of mesonotum mixed with long, erect, brown hair. Abdominal tergites covered with rather long, adpressed, black hair; hair bands orange, entire, wider laterally, the 4th almost interrupted medially; 5th and 6th tergite covered with orange tomentum, mixed with long, suberect orange hair, a depilated area on 5th tergite, narrow, median with long, suberect black hair; margin of 6th segment with the angles obtuse, the emargination sinuate.

Aneityum, 5 ♀♀, 8 ♂♂, x.1930. Erromanga, 1 ♂, vii.1930.

The ♂♂ are variable, in some specimens the abdominal hair bands are lighter than the tomentum of the apical tergites—lemon, pale yellow, or silvery white. The extent of the depilated area is also variable; the ♂ from Erromanga has none, but this may be an aberrance because on a ♂ from Aname, Aneityum, this area is represented by a few short, black hairs at base of tergite.

Nest in soil on grassland.

Megachile similis zingowli subsp. n.

Hair of face cream mixed with long, dark brown suberect hairs; shorter dark brown tufts on cheeks, on vertex dark brown, on underside of head white. Hair on mesonotum rather short, dark brown mixed with very short cinnamon, on remainder of thorax, cinnamon. Round, lemon-yellow patches on mesopleura as in typical form. 1st tergite of abdomen with long, deep cream hair mixed with dark brown; dorsal hair bands narrow, thin, orange, covered by a longer fringe of dark brown. Scopa orange.

♂. Hair on face cinnamon; tufts at inner orbits, dark brown. Hair of mesonotum dark brown on the disc, cinnamon elsewhere. Hair band of 2nd abdominal tergite interrupted medially; of 3rd and 4th narrowed medially; 5th and 6th tergite covered with

orange tomentum mixed with long, orange, suberect hairs, a few, shorter black hairs down the centre of tergite, sparse near the base, and forming a small, dark patch below the middle.

All material from Malekula. Ounua, 1 ♂, 1 ♀ (type), 8 ♀♀, ii.–iii.1929; South West Bay, 2 ♀♀, iii.1930.

♀ distinguished from the typical form by the cinnamon hair on thorax, and grey mixed with dark brown on face; and light brown hair mixed with dark on the mesonotum. The ♂ is distinguished by the interrupted hair band on 2nd abdominal tergite.

Megachile diligens hedleyi Rainbow, 1897, *Mem. Austr. Mus.*, **3** : 93.

(Funafuti, Ellice Is.) Type in Australian Museum, Sydney.

= *M. calens* Ckll. 1914, *Ann. Mag. nat. Hist.*, (8) **14** : 465 (New Hebrides) = *M. vavauensis* Ckll., 1924, *Ann. ent. Soc. Amer.*, **17** : 393 = *M. diligens calens* Ckll., 1928, Perkins and Cheesman, *Insects Samoa Brit. Mus.*, **5** : 8.

All specimens from Malekula. Ounua, 7 ♀♀, 4 ♂♂, iii.–iv.1929; N.E. Malekula, 2 ♀♀; Atchin Is., 1 ♂, vi.1929; South West Bay, 2 ♂♂, i.1930.

Nests in dry logs on coral beaches.

Recorded from Ellice Island and Fiji.

Megachile diligens buxtoni Perkins and Cheesman, 1928, *Ins. Samoa Brit. Mus.*, **5** : 8 (♂).

The ♀♀, especially rubbed specimens, are extremely difficult to separate from the last subspecies. The only character which I can find is the slightly greater amount of dark hairs in the clothing of *hedleyi* than in *buxtoni*. On the 1st abdominal tergite in *buxtoni* the hair at the base is light with a row of dark hairs in front of it, and the lateral tufts light. In *hedleyi* there are no light hairs at base of 1st abdominal segment and the lateral tufts are dark with light hairs on the outer side.

The ♂♂ are separable by the area covered with dark hair in the centre of the 6th abdominal tergite, which is broad and triangular in *hedleyi* and a narrow longitudinal stripe in *buxtoni*.

The nesting habits are, however, distinct, for *buxtoni* nests in madreporic boulders on coral reefs, utilising the ready-made tunnels for the burrows which are lined with leaves, as are also the burrows of *hedleyi*.

Ounua, Malekula, ii.–iv.1929.

The two following species, *rambutwan* and *rangii* belong to the Papuan *malayana* Cam. group, characterised by—

Puncturation of occiput finer than that of cheeks, with or without pile. Space between upper apex of eye and occipital margin greater than that between hind ocellus and the eye. Mesothorax very densely and finely punctate.

Megachile rambutwan sp. n.

♀. Black; vestiture and scopa golden-orange. Face densely punctate; punctures of clypeus irregularly longitudinal striate, clypeal margin shining, narrowly emarginate on each side of the centre, longitudinal carina reaching the apex, extending to middle of frons; sparse pubescence on clypeus mixed with longer semi-decurrent hair, orbital tufts not long, fairly dense, slightly shorter on the frons, and erect. Mandibles finely longitudinal striate, densely at the base which is covered with fine pubescence, with punctures between apically; bidentate, apical tooth rather long, second wide and obtuse. Head and frons densely, finely punctate, very finely on the occiput which is sparsely covered with short, erect hair. Puncturation of cheeks coarser and sparser (space between equals

width of a puncture), more so in the lower third, rather densely pubescent. Mesonotum very densely and finely punctate, very sparse very short brown hair on the disc, and dense longer orange hair at margins. A wide fringe of long hair on pronotum continued laterally. Scutellum flat, punctures slightly coarser, hair rather short on the disc with tufts of long hair laterally on the postscutellum, shorter in the centre. Propodeon with dense, long hair. Abdominal tergites entirely covered in pile; with sparse, longer hair on 7th and 8th. Hair of fore and middle tibiae rather short and sparse. Wings fuscous with a golden iridescence. Tufts of propleural calli very dense and conspicuous. Length 15 mm.

♂. Face with a long fringe at clypeal apical margin, and tufts of long hair at orbits and between antennae. Pile on abdominal tergites denser apically, on 5th and 6th with long black semi-erect or decurrent hairs, 6th tergite with margin very weakly emarginate. Length 14 mm.

Malekula, South West Bay, 1 ♂, 1 ♀, ii.–iii.1930 (types), 4 ♂♂, 7 ♀♀, i.–iii.1930; Ounua, 1 ♀, ii.1929. Santo, 1 ♀, viii.1929; Santo, Renée R., 1 ♀, 1900. Semeo Is., 1 ♂, 1890. New Caledonia, Nouméa, 1 ♂, 1904 (*J. J. Walker*).

Burrows in dry logs, posts of sheds, etc. Not lined with leaves.

Megachile rangii sp. n.

Hair on face fulvous, very sparse on clypeus and vertex, mesonotum very, very short, dark brown hair on disc, dense rather short orange plumose hair at margins, mixed with pile; scutellum densely covered with orange. Abdominal tergites with fine, shallow punctures and a few scattered larger ones, with short light fulvous decurrent hair, sparse whitish apical fasciae, and longer light brown hairs laterally. Two apical tergites with long black hair. Scopa black with orange laterally. Wings fuscous. Length 14 mm.

Tanna, Lochoklau, 1 ♀ (type), x.1930. Erromanga, Man-o'-war, 1 ♀, vii.1930. Flying round a rotten tree stump. Named after the notorious sandalwood trader, Rangi Toringé.

Key to Species of Megachile.

Space between upper apex of eye and occipital margin greater than between hind ocellus and the eye. Scopa golden-orange . . . . *rambutwan* sp. n.
Scopa black . . . . . *rangii* sp. n.
Space between upper apex of eye and occipital margin about half that between hind ocellus and the eye. Scopa orange; abdominal hair bands black.
No cinnamon hair on thorax . . . . . *similis* Sm.
Cinnamon hair on thorax . . . . . *similis zingowli* ssp. n.
Abdominal hair bands orange. Area without tomentum on 6th abdominal tergite in the ♂ wide, triangular . . . . . *diligens hedleyi* Rainb.
Area narrow, longitudinal . . . . . *diligens buxtoni* Perk. & Chees.

EVANIIDAE.

EVANIINAE.

Evania appendigaster L., 1758, *Syst. Nat. ed.* 10 : 566.

Malekula, Ounua, 1 ♀, iii.1929. Erromanga, 1 ♀, vii.1930.

Evania sericea Cam., 1883, *Trans. ent. Soc. Lond.*, **1883** : 191.

Malekula, Ounua, 2 ♀♀, iv.1929. Erromanga, 2 ♀♀, vii.1930. Aneityum, 3 ♀♀, x.1930.

Both species cosmopolitan.

GASTERUPTIONINAE.

Hyptiogaster ritae sp. n.

♂. Red; mesonotum, dorsal side of hind femora and tibiae, and flagellum, black; abdomen with black infuscations. Scape testaceous. Matt; with short, pale gold hair, very sparse on mesonotum and vertex. Mandibles punctate. Malar space about $\frac{1}{3}$ base of mandibles. Width of face (excluding eyes) nearly $1\frac{1}{2}$ the length (fig. 1); longitudinally striate punctate, more densely at sides, punctures fine and shallow. Clypeus less densely punctate, median carina distinct, prominent at apex; foveae deep. Head wider than thorax. Distance from hind ocelli to margin twice that between them and the eye. Frons coarsely reticulate. Antennae with flagellar segments longer than wide; scape long, 1st segment about the length of 1st segment of flagellum. Occiput with a few, indistinct transverse

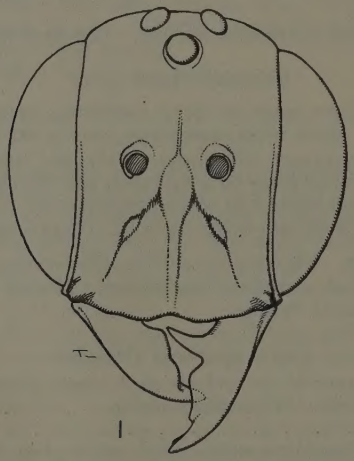

FIG. 1.—Head of *Hyptiogaster ritae* sp. n. viewed from in front.

striae. Mesonotum densely, coarsely reticulate. Scutellum with coarse reticulations irregularly transverse. Propodeon coarsely reticulate with a distinct longitudinal carina. Propleura aciculate with fine punctures, very dense anteriorly, sulcus coarsely reticulate. Mesopleura very densely, finely reticulate punctate with transverse striae, prepectus shining, irregularly transverse rugose. Metapleura with shallow reticulations. Hind coxae finely transverse striate; tibiae club-shaped, sides slightly flattened, nearly as wide as femora. Width of 1st tarsal segment $\frac{1}{6}$ the length, longer than remaining segments together. Length 8 mm.

♀ as ♂, terebra concealed.

Aneityum, 1 ♂ (type), 3 ♂♂, 2 ♀♀, x.1930. Malekula, Ounua, 2 ♂♂, 2 ♀♀, ii., iv.1929. Tanna, 1 ♀, x.1930.

Distinguished by the reticulate frons; shows affinity with Australian species, and is near an undescribed species from Queensland.

ICHNEUMONIDAE.

ICHNEUMONINAE.

Ichneumon promissorius Erich., 1842, *Arch. Naturges.*, **8** : 256. (Australia.)
Probolus albocinctus Cam., 1906, *Entomologist*, **39** : 181 (Australia).
Probolus varilineatus Cam., 1912, *Proc. linn. Soc. N.S.W.*, **37** : 174 (Australia).

Aneityum, 5 ♂♂, x.1930. Erromanga, 6 ♂♂, vii., viii.1930. Tanna, 2 ♂♂, x.1930.

The colour marking is variable in this species; in all specimens of the above series except one from Aneityum the 4th abdominal tergite is immaculate.

PIMPLINAE.

Echthromorpha juncta sp. n.

♀. Black and yellow. Head yellow; mandibles and palps fulvous; teeth black. Large, black macula in centre of frons extending between antennae, including stemmaticum, and occiput except orbits. Scape of antennae fulvous, flagellum fuscous. Mesonotum with three, broad, longitudinal, black stripes, touching lateral margins. Scutellum and postscutellum with carinae, yellow. Propodeon suffused with yellow, on each side of median black stripe; laterally fulvous. Propleura with anterior half, yellow; posterior half, black. Mesopleura with upper $\frac{2}{3}$ and callus, yellow; lower $\frac{1}{3}$ and sterna, black; prepectus black. Metapleura fulvous, metasterna black. Abdomen black, with yellow apical fascia to tergites; on 6th interrupted, 7th and 8th tergites red-brown. Legs fulvous; fore and middle coxae and fore trochanters, yellow. Claws black. Apices of fore-wings with a fuscous part.

Shining. Head glabrous; sides of face sparsely punctate, more densely near antennae. Frons carinate. Antennae with 32 segments. Mesonotum densely, irregularly punctate, punctures coarse, transverse striate anteriorly. Propodeon densely transverse reticulate punctate in the upper half except in the middle; lower half glabrous, except laterally where is a longitudinal series of punctures extending downwards from the inner side of spiracles. Propleura with irregular, longitudinal rugae above the sulcus, and a few transverse rugae from the lower half to posterior margin continued to upper angle in a series of short, transverse rugae. Mesopleura glabrous in upper half, a few punctures in the middle, and lower half posteriorly; prepectus, sterna, and lower half anteriorly rather densely, coarsely punctate (space between punctures twice the width of a puncture). Metapleura glabrous in upper half, densely, transverse punctate in lower half. Abdominal segments densely punctate, the 2nd less densely with spaces between the punctures twice or three times the width of a puncture. Length 15 mm. Terebra 7 mm.

♂. Colour pattern variable. Head as ♀, except scape of antennae which is yellow. Propodeon more definitely yellow. Propleura with black macula at upper posterior angle. Mesopleura with black, posterior margin; small, black macula on mesosterna (or entirely black). Metapleura fulvous suffused slightly with yellow, black macula in the centre anteriorly. Hind trochanters with black apical margin. All femora, tibiae and tarsi fulvous; hind tarsi darker. Abdominal tergites 1–5 with yellow, apical fasciae; 7th tergite fulvous with black macula centrally at the base. Face sparsely, finely punctate at the sides. Segments of flagellum slightly flattened dorsally, 30–32 segments. Mesonotum longitudinally striate punctate anteriorly. Propodeon densely transverse striate laterally in the upper half. Propleura impunctate. Mesopleura sparsely punctate; prepectus more densely. Metapleura sparsely punctate. Abdominal tergites with a few, shallow punctures medially at the base.

N.E. Malekula, 1 ♀ (type), vi.1929; South West Bay, 1 ♀, 2 ♂♂, v., vi., xii.1930. Erromanga, 1 ♀, vii.1930. Aneityum, 7 ♂♂, x.1930. Tanna, 1 ♀, x.1930. Santo, 1 ♂, ix.1929. Banks Is., Gaua, 2 ♀♀, 2 ♂♂, xi.1922 (*T. T. Barnard*).

Closely allied with *agrestoria* Swed. (Tahiti and Rapa) and also with *continua* Brullé (New Guinea, Queensland, Gilbert Is.); distinguished from both species by the less dense puncturation of the abdominal tergites, as well as differences in the colour pattern. There appears to be no structural character on which to separate males of *juncta* from those of the two allied species, but the longitudinal black stripe on the propodeon distinguishes it from *agrestoria*, and the very faint fuscous apices of fore-wings from *continua*.

Echthromorpha castanea sp. n.

♀. Rufous castaneous. Head paler or dull yellow except frons (excluding orbits) and back of head. Two maculae on occiput, three longitudinal stripes on mesonotum, centre of propodeon, discs of abdominal tergites, teeth of mandibles, and claws, piceous. Mandibles and fore legs fulvous. Antennae castaneous. Wings hyaline, nervures and stigma pale brown. Mandibles narrow, length 1¼ the width. Malar space equals length of mandibles. Clypeus slightly longer than wide. Head glabrous; frons with faint, median carina. Flagellum with 30 segments. Mesonotum finely, sparsely punctate, anteriorly more densely and the punctures longitudinal striate. Scutellum finely, sparsely punctate, postscutellum glabrous. Propodeon punctate in the basal half except centre, transverse striate punctate above the spiracles. Propleura with faint, short striae near posterior margin. Mesopleura strongly buccate in the centre, with fine, sparse punctures, less sparse on the mesosterna and prepectus. Metapleura with shallow, indistinct puncturation. Abdominal tergites very sparsely, finely punctate in the middle and lateral angles. Length 14 mm. Terebra 3 mm.

♂ as ♀, but middle and hind tarsi black.

Efate, Vila, 2 ♂♂, ix.1922 (*T. T. Barnard*). S.W. Malekula, 1 ♀ (type), 4 ♀♀, i.1930; N.E. Malekula, 2 ♂♂, vi.1929; Ounua, 1 ♀, 1 ♂, iv.1929. Tanna, 2 ♀♀, x.1930. Aneityum, 2 ♂♂, xi.1930.

Easily distinguished by the strongly buccate mesopleura as well as the rufous-castaneous colour.

Xanthopimpla nowebin sp. n.

♀. Fulvous, largely suffused with yellow; mesonotum darker. Scutellum and postscutellum, mesopleural calli, and fore legs, yellow. Teeth of mandibles, stemmaticum, fascia at base of propodeon, a pair of oval maculae on 3rd abdominal tergite, and claws, black. Antennae, apical tarsal segment of hind legs, and nervures of wings, fuscous. Apices of fore-wings, pale fuscous. (One ♂ from Aneityum rufous, with apical abdominal segments, and tarsi, yellow.)

Nitidulous. Head wider than thorax, not roundly produced behind the eyes. Length of face 1½ the width. Malar space ⅔ the base of mandibles. Cheeks wider than long. Width of face at base of antennae equals the greatest width of eyes seen from the front. Face finely, sparsely punctate; clypeus distinctly separated, foveae deep. Antennae with 31 segments to the flagellum; 1st segment twice the length of 2nd, apical segment equal in length to the two preceding it. Notauli deeply impressed in front, and extending ⅘ of length of mesonotum. Scutellum roundly convex, glabrous, lateral carinae distinct but narrow. Propodeon with one transverse carina anteriorly (fig. 2 *a*). Pleura impunctate, underside of thorax with fine, regular punctures. Abdomen very finely punctate; 1st abdominal segment longer than wide, with two basal carinae extending almost half

its length (fig. 2 *b*). Areolet of fore-wing open in front (fig. 2 *c*), apical radius straight. Nervellus broken in the upper 4th. Length 7½ mm. (excluding ovipositor).

Malekula, Lambubu, 1 ♀ (type), ii.1930; South West Bay, 2 ♀♀, xii.1929; Ounua, 1 ♂, iv.1929. Santo, 1 ♂, ix.1929. Erromanga, 1 ♂, ix.1930. Aneityum, 6 ♂♂, ix.–x.1930.

Belongs to Krieger's group xxiv (1914 (1915), *Arch. Naturges.*, **80** A (7) : 136).

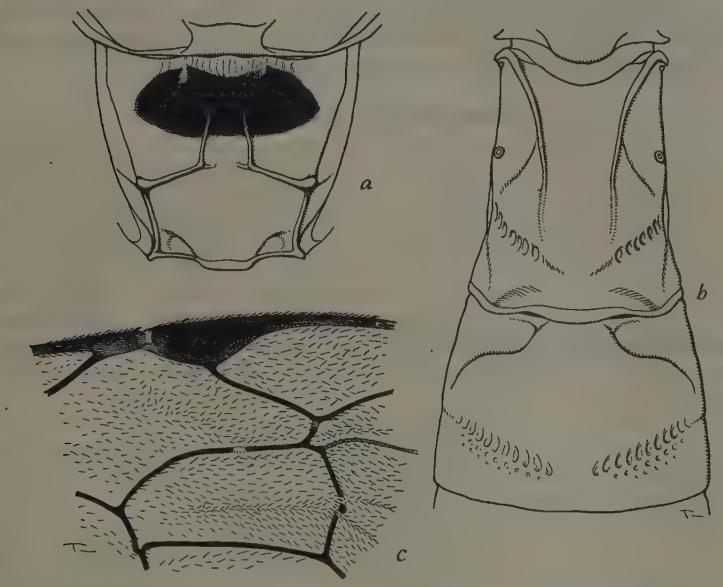

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Fig. 2.—*Xanthopimpla nowebin* sp. n.: (*a*) propodeon from above; (*b*) abdominal tergites 1 and 2; (*c*) portion of fore-wing to show areolet.

Xanthopimpla xara sp. n.

♀. Fulvous suffused with yellow. Scutellum, mesopleural calli, yellow. Flagellum fulvous, darker apically. Hind tarsi fuscous. Stemmaticum, fascia at base of propodeon, a pair of maculae on 3rd abdominal segment, fascia on 7th basally, interrupted medially, black. Wings hyaline, nervures fuscous.

Nitidulous. Head wider than thorax, strongly rounded behind the eyes. Length of face equals width; the width at the base of antennae 1⅓ the greatest width of eyes seen from the front. Face very finely, sparsely punctate. Clypeus not separated at the base; foveae deep. Malar space ½ width of mandibles at the base. Flagellum with 34 segments; 1st segment 1⅓ the length of 2nd; apical segment equals length of the two preceding segments. Notauli deeply impressed in front but very short. Scutellum not strongly convex, with long, upright hairs; lateral carinae rather wide. Propodeon with areolation complete (fig. 3 *a*). Propleura impunctate; mesopleura with sparse, fine punctures. Sterna and posterior coxae more densely punctate. Abdomen with fine, regular punctures. Areolet of fore-wing closed (fig. 3 *b*). 1st abdominal segment 1⅓ the length of 2nd, with

a pair of lateral carinae extending from the base to the punctate impression before the apical margin (fig. 3 *c*). Nervellus broken in the upper 4th. Length 6 mm.

N.E. Malekula, 1 ♀ (type), vi.1929; South West Bay, 1 ♀, xii.1929. Appears to belong to Krieger's (1914) group x.

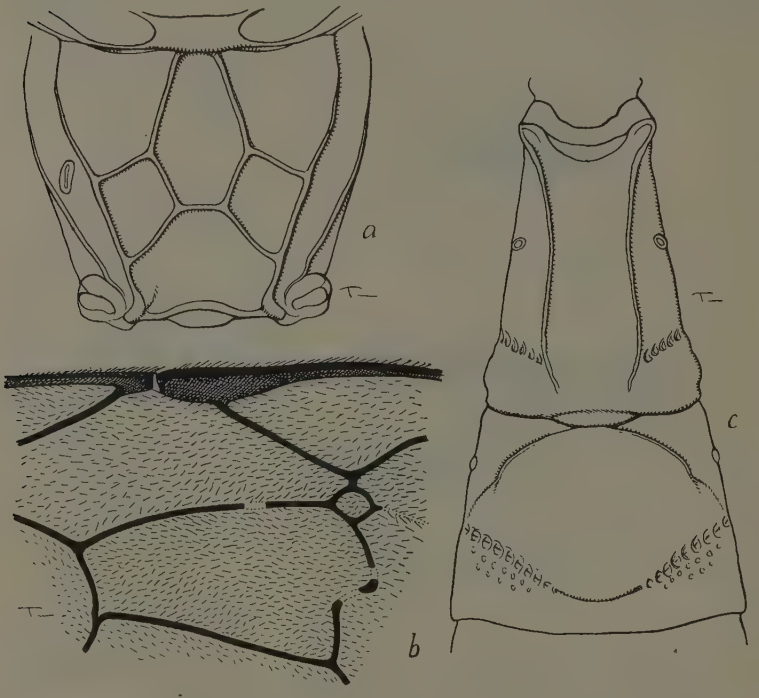

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Fig. 3.—*Xanthopimpla xara* sp. n.: (*a*) propodeon from above; (*b*) portion of fore-wing to show areolet; (*c*) abdominal tergites 1 and 2.

Certonotus mogimbensis sp. n.

♀. Fulvous, suffused with yellow, abdomen darker. Head yellow except occiput and vertex, clypeus and palpi pale fulvous. Lobes of mesonotum darker. Scutellum yellow, fulvous basally. Scape fulvous, segments of flagellum 18–22, dull yellow; remainder of segments, teeth of mandibles, claws, hind tarsi, terebra, nervure of wings and stigma, carina on underside of posterior coxae, fuscous.

Nitidulous, sparsely covered with short, recumbent pale brown hair. Face finely punctate, rather densely except in the middle; a small, median carina between antennae. Eyes very slightly emarginate; space between hind ocelli less than that between hind ocellus and the eyes. Malar space long, equal to width of clypeus at the base, with very fine, dense longitudinal striae. Mesonotum transverse rugose, the rugae pronounced, interrupted and short but not scabrous; central lobe truncate anteriorly, notauli distinct.

Scutellum finely, sparsely punctate, width twice its length, with a distinct reflexed anterior margin, anterior face declivous, with fine, longitudinal striae and a few, minute, scattered punctures. Propodeon with 6 distinct areas (fig. 4 *a*), the whole segment sparsely, irregularly punctate. Spiracles oval. Propleura with a few, minute, scattered punctures. Abdomen cylindrical, impunctate (fig. 4 *b*); length of 1st segment nearly twice its width at the apex, which is about twice the base; length of 2nd segment nearly equal to its width at the apex, which is 1½ the base; segments 5–9 sub-compressed laterally, almost three times as wide as 1st segment at the apex. Terebra long, nearly 1½ length of entire insect. Carinae on underside of posterior coxae laminate, extending for about ⅓ length of coxae. Areolet open behind (fig. 4 *c*). Lower basal abscissa of radius emitted from a little behind middle of stigma. 2nd recurrent nervure angularly but not sharply broken. Nervulus almost interstitial; nervellus straight, unbroken. Length 7 mm., terebra 8 mm.

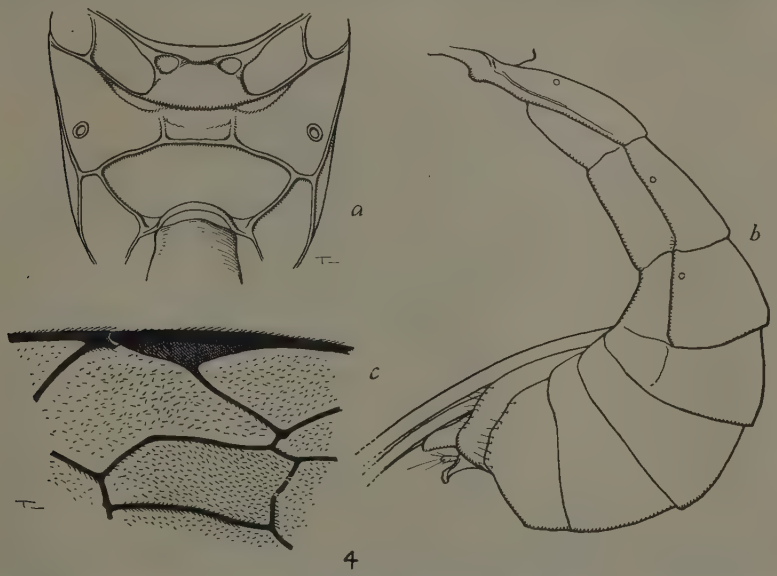

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Fig. 4.—*Certonotus mogimbensis* sp. n.: (*a*) propodeon from above; (*b*) lateral view of abdomen; (*c*) portion of fore-wing to show areolet.

Malekula, Ounua, 1 ♀, iv.1929. Taken inside the house. Emitted a very strong, pungent odour.

It is with extreme reluctance that I assign this species to *Certonotus*. I have not seen the genotype *varius* Kriech., but my species differs from the description in the following important characters: areolet open behind; propodeon with six distinct areas, and the spiracles oval. Kriechbaumer does not mention the nervellus in his description, but since *monticola* Morley possesses the other generic characters and in that species the nervellus is broken, the nervellus in *varius* is almost certainly similar, whereas in *mogimbensis* it is straight and unbroken. My species is, however, generically allied with *hinnuleus* Krieg. and *leeuwinensis* Turner, which have been placed in this genus; it seems therefore advisable to wait until the tribe is revised when doubtless a new genus will be erected to receive these three species.

In Ashmead's key *Certonotus* is separated by the absence of a carina between the antennae; this character is, however, not mentioned in Kriechbaumer's description.

TRYPHONINAE.

BASSINI.

Bassus laetatorius ikiti subsp. n.

Differs from typical form in the shorter lower abscissa of the nervellus, which is about half the length of the upper abscissa; also in the coloration of the abdominal segments, the apical margin of 1st segment and 2nd–4th being entirely red-brown (the apical half of 4th segment is infuscate in some specimens).

Lokochlev, Tanna, 8 ♀♀, x.1930. By sweeping in the bush. One specimen taken at light.

OPHIONINAE.

OPHIONINI.

Henicospilus Stephens.

This large genus presents serious difficulties owing to the fact that specific characters are often so indefinite; although in a long series it will be seen that, in spite of a certain amount of variation, characters are really constant. As this fact was not realised by early authors, who worked on scanty material, they were apt to record several distinct species as one species, under the impression that because specimens agreed superficially, or on one character, they were con-specific though showing wide variation from the type. Consequently old records are unreliable and must be ignored unless types are available.

So far all attempts to divide the genus have been unsatisfactory; although species arrange themselves into groups, no good generic characters have yet been discovered on which to separate them. All that can be done at present is to draw attention to affinities with other species, for, until a great deal more taxonomic and biological work has been carried out, no revision of the genus could ever be undertaken. It is undoubtedly very rich in species, the amount of material available in museums being in nowise commensurate with what species exist in nature. This is largely due to a lack of interest in such insects among economic entomologists and collectors who might have the opportunity of assisting in solving some of the difficulties of determination. If it were realised that what are probably regarded as common, red Ophions which often come to light, represent many different species and are of great interest, perhaps more specimens might be sent to museums. Because of difficulties in collecting these insects, all spasmodic collecting by those who have the opportunity is of value, even if they themselves are not particularly interested in the group.

Henicospilus samoana Kohl, 1908, *Denkschr. Akad. Wiss. Wien* **81** : 315 (Samoan Is.).

Malekula, Ounua, 2 ♀♀, iii.–iv.1929; Malua Bay, 1 ♀, vii.1929. Erromanga, 1 ♀, vii.1930. Tanna, 1 ♀, x.1930. Aneityum, 2 ♀♀, x.1930.

Recorded from Society Islands, Tahiti; Samoan Islands, Papua, Mafulu.

Henicospilus nocturnus Kohl, 1908, *loc. cit.* (Samoan Is.).

Erromanga, 1 ♂, vii.1930. Aneityum, 1 ♀, x.1930, Banks Is., Gaua, 1 ♂, x.1922 (*T. T. Barnard*).

Recorded also from Samoan Islands, Upolu, Savaii. Society Islands, Tahiti, Raiatea; Sumatra; Ceylon; Papua, Mafulu.

Henicospilus salomonis Cam. 1911, *Proc. linn. Soc. N.S.W.*, **36** : 361. Type Brit. Mus. (Solomon Is.) = *expeditus* Kohl, 1908 (nom preocc.).

Malekula, Malua Bay, 1 ♂, vii.1929. Aneityum, Anelgahaut, 1 ♂, x.1930. Pentecost, Langa-langa, 1 ♀, ix.1922 (*T. T. Barnard*).

Henicospilus rhoedae sp. n.

♀. Fulvous. Abdomen darker, apical segments with infuscations. Antennae, and apical tarsal segment of fore legs, fuscous. Teeth of mandibles black. Fleck of fore-wing, head (except back) and centre of face, yellow. Mandibles rather narrow, base 1½ base of teeth, upper tooth longer. Clypeus narrowly truncate apically, sparsely punctate. Face wider than long; median tubercle elongate, pronounced. Cheeks rather wide, nearly half greatest width of temples. Antennae with 2nd segment ⅔ of 1st, length of 2nd 2½ the width (apical segments missing). Occiput declivous, temples rounded. Mesonotum

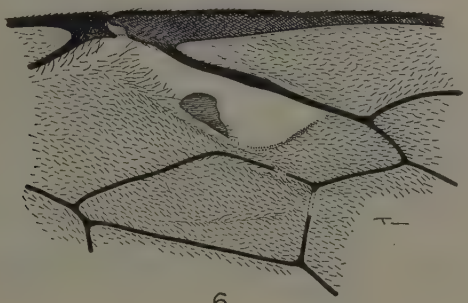

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Fig. 6.—*Henicospilus rhoedae* sp. n.: portion of fore-wing to show radial and discoidal cells.

distinctly, finely punctate. Scutellum sparsely, rather coarsely punctate, sides carinate to apex which is about half the width at the base. Propodeon coarsely reticulate in the centre and lower half, with curved, broken rugae in the upper half, finer at the upper, lateral angles. Propleura regularly punctate with broken, irregular, oblique rugae in the sulcus, and at anterior margin. Mesopleura regularly, finely punctate with fine, transverse rugae between the punctures in the lower ⅔. Metapleura finely, densely reticulate. Radial and discoidal cells as figured (fig. 6). Nervulus slightly antefurcal. Upper abscissa of nervellus 1½ the basal abscissa. Length of hind coxae 1½ the width. Length 16 mm.

Malekula, Ounua, 1 ♀, ii.1929. Fiji Is., Nadovi, 1 ♀ (type).

Henicospilus laramus sp. n.

♀. Dark rufous. Teeth of mandibles, stemmaticum, nervures and stigma, black. Mesopleura with fuscous maculae. 5th abdominal segment and remaining apical segments, infuscate. Face minutely, sparsely punctate; tubercle elongate, distinct. Cheeks not strongly narrowed below. Flagellum with 62 segments, length of 2nd 2½ the width. Back of the head truncate, hind ocelli touching margin of eyes. Mesonotum with fine, shallow punctures. Scutellum ⅓ wider at base than apex, length 1½ the width; strongly

carinate laterally to the apex, finely, sparsely punctate, longitudinally striate in apical half. Base of propodeon glabrous; apical area very coarsely reticulate. Propleura finely, sparsely punctate, with a few, short, oblique rugae in the sulcus. Mesopleura very

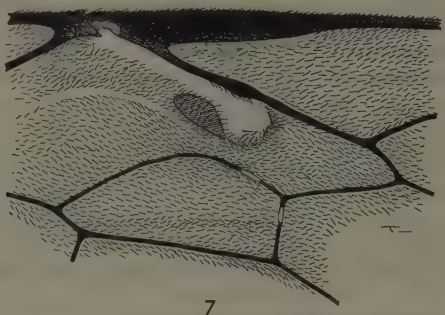

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Fig. 7.—*Henicospilus iaramus* sp. n.: portion of fore-wing to show base of radius.

finely, transverse punctate striate in the upper half, and in the centre at posterior margin; anterior margin in the centre and lower third strongly, regularly transverse rugose, the rugae below extending the entire width. Metapleura very coarsely reticulate in lower division, glabrous in upper angle; finely punctate in upper division. Width of hind coxae half the length, finely and regularly punctate. Base of radius incrassate in basal $\frac{2}{3}$ (fig. 7). Nervulus interstitial. Nervellus broken at the lower $\frac{1}{4}$. Length 18 mm.

♂ flagellum with 60 segments.

All material from Tanna. Loanvialu, 1 ♀ (type), x.1930; Mt. Tuguosmerra 3,500 ft., 1 ♂, x.1930; Whitesands, 2 ♀♀, 1 ♂, x.1930; Whitesands, 1 ♂, ix.1925 (*P. A. Buxton* and *G. H. Hopkins*).

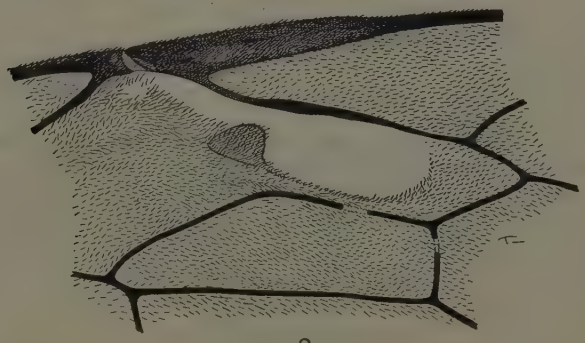

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Fig. 8.—*Henicospilus pankumensis* sp. n.: portion of fore-wing to show radius and discoidal cell.

Henicospilus pankumensis sp. n.

♀. Rufous. Upper orbits extending behind the eyes to the lower apices, yellow. Teeth of mandibles and claws, black. Abdomen darker apically. Nervures of wings fulvous,

stigma and fleck yellowish. Face very finely, densely punctate, with short, median carina. Cheeks narrowed below, $\frac{1}{4}$ the widest part of temples. Flagellum with 53 segments, width of 3rd segment about $\frac{1}{3}$ of length. Head rounded behind the eyes. Occiput truncate. Mesonotum finely punctate. Scutellum with sparse, shallow punctures, sides strongly carinate to apex, length $1\frac{1}{3}$ the width at base. Basal area of propodeon faintly, irregularly sculptured; anterior area coarsely but not strongly reticulate, with longitudinal rugae in the middle issuing from the basal carina. Propleura finely punctate near the upper margin, the remainder densely, longitudinally reticulate striate, the striae curved. Mesopleura densely, very distinctly punctate. Metapleura densely, finely transverse reticulate punctate, upper division irregularly transverse rugose. Hind coxae with dense, minute punctures, length about $1\frac{1}{3}$ the width. Radius and discoidal cell as figured (fig. 8). Nervulus interstitial. Length 20 mm.

Santo, Arachi, 1 ♀ (type), viii.1929. Under bark. Malekula, Pankumu Bay, 1 ♀, iv.1929, among reeds. Aneityum, Aname, 1 ♀, x.1930. Coast.

Easily distinguished by the strong puncturation of the pleura.

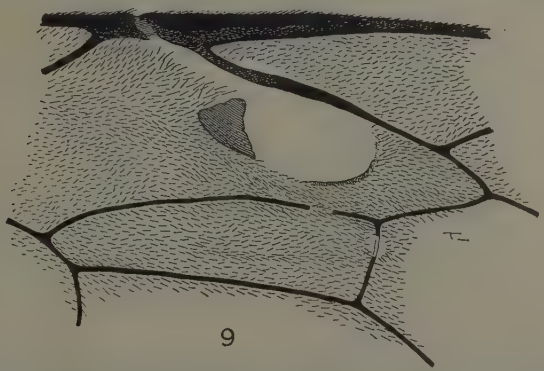

FIG. 9.—*Henicospilus neddenveli* sp. n.: portion of fore-wing to show radius, disco-cubital and discoidal cells.

Henicospilus neddenveli sp. n.

♂. Rufous. Antennae fuscous. Upper orbits extending to $\frac{2}{3}$ of length of eyes at the back, yellow. Teeth of mandibles and claws, black. Nervures of wings fuscous. Basal fleck of fore-wing, testaceous; distal fleck very faintly chitinised. Face and clypeus strongly, regularly punctate, irregularly striate punctate medially, punctures finer near margin of eyes. Cheeks wide, temples of almost uniform width, their greatest width about $1\frac{1}{2}$ that of cheeks. Antennae with 63 segments. Mesonotum densely and distinctly punctate. Scutellum with minute punctures, and a few, short, longitudinal striae at extreme apex, base slightly more than twice as wide as apex. Propodeon with basal area impunctate; anterior area coarsely reticulate, with short, longitudinal rugae immediately below basal carina. Propleura with oblique striae which are irregularly bifurcate, and fine punctures at upper angle. Mesopleura punctate in upper third medially, with irregular, transverse striae laterally, oblique and coarser at anterior margin, short and fine at posterior margin, remainder densely transverse rugose, more coarsely just above coxae. Metapleura very coarsely transverse rugose in the centre, glabrous at anterior margin, with reticulations at posterior margin continuous with those of propodeon. Radius, disco-cubital, and discoidal cells as figured (fig. 9). Nervulus antefurcal. Length 20 mm.

Malekula, Tumaru plateau, 2,000 ft., 1 ♂, iii.1930 (type).
Named after the youngest boy of Ringapat, the cannibal king.

Henicospilus wenesubae sp. n.

♀. Black. Temples and mandibles dark brown. Covered with rather short, silvery hair. Alutaceous. Middle of face with faint, longitudinal striae, remainder minutely punctate, sparse on the clypeus. Mandibles very narrow, width at apex ⅓ of base. Cheeks narrow, temples rather wide. Median tubercle of face elongate, prominent. Flagellum with 53 segments, the length of 2nd segment three times its width. Occiput truncate, with a slight median depression. Mesonotum densely, finely punctate. Scutellum with sides strongly carinate to the apex, width at apex nearly half the base, with oblique impressions from the centre apically. Base of propodeon densely, finely transverse striate; apical area densely rugose, central rugae curving outwards at about the middle, with irregular, upward curved rugae below, laterally coarsely reticulate. Propleura obliquely rugose, the rugae dense, fine, and furcate; fine punctures in the upper angle. Mesopleura distinctly, rather sparsely punctate, with broken, transverse rugae in the centre.

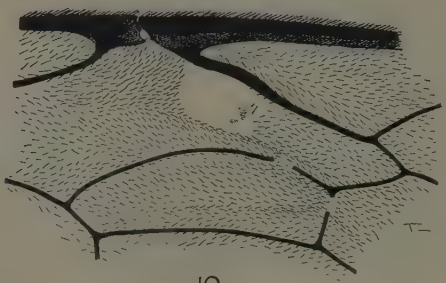

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Fig. 10.—*Henicospilus wenesubae* sp. n.: portion of fore-wing to show pellucid area.

Metapleura with sparse, shallow punctures, and indistinct, fine, transverse rugae. Teeth of pecten of fore claws, long, strong and sparse. Pellucid area of fore-wing short (fig. 10). Nervulus antefurcal. Nervellus broken at lower ¼. Length 14 mm.

All three specimens from Malekula. Ounua, 1 ♀, iii.1929; South West Bay, 1 ♂, xii.1929, 1 ♀, iii.1930.

Henicospilus bakeri sp. n.

♀. Rufous. Head yellow. Teeth of mandibles, claws, nervures of wings, and antennae, black. Tarsi fuscous. Face rather short, length 1½ the width. Mandibles wide; teeth equal. Clypeus distinctly truncate apically, apical margin straight, strongly reflexed, foveae deep. Median tubercle of face distinct, elongate. Flagellum with 63 segments; length of 2nd three times the width. Cheeks narrow about ⅓ of temples at the widest part. Back of head rounded. Mesonotum minutely punctate. Sides of scutellum longitudinal striate, carinae short. Basal area of propodeon glabrous; apical area with a distinct carina laterally, the remainder with coarse, curved rugae reticulate in the middle, and three longitudinal rugae issuing from the basal carina, with reticulations between. Pleura glabrous. Prepectus finely punctate with faint, oblique striae. Hind coxae long, length 2½ the width, finely, sparsely punctate. Radius of fore-wing thickened in the basal ¼;

pellucid area short, extending only to the end of the thickened part of radius (fig. 5). Nervulus strongly antefurcal. Nervellus broken above the middle. Length 18 mm.

West Santo, near Ladhogh, 1 ♀, 1 ♂, on underside of leaf, i.1933 (*J. R. Baker*).

Near *nigrinervis* Cam. (New Britain).

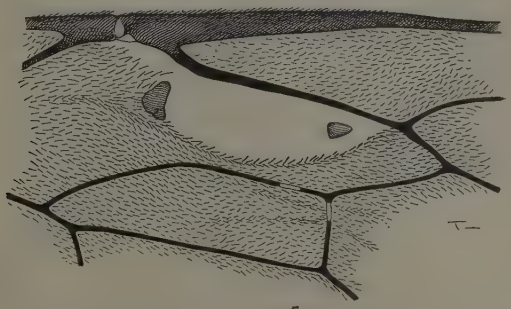

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FIG. 5.—*Henicospilus bakeri* sp. n.: portion of fore-wing to show pellucid area.

Key to Species of Henicospilus.

Mandibles narrow, width at base twice base of teeth. Pellucid area of radial cell with two chitinous flecks which are not widely separated; basal fleck triangular, length slightly more than width; distal fleck faintly chitinised; pellucid area extending about $\frac{3}{4}$ of basal radius. Propodeon and metapleura coarsely reticulate. Nervulus antefurcal . . . . . *neddenveli* sp. n.

Mandibles very narrow, base about three times base of teeth. Flecks widely separated, pellucid area extending almost to juncture of apical and basal radius. Propodeon finely reticulate. Metapleura densely punctate. Apical segments of abdomen fuscous. Nervulus strongly antefurcal . *salomonis* Cam.

Flecks not widely separated; pellucid area extending $\frac{2}{3}$ of basal radius. Propodeon coarsely reticulate. Metapleura with transverse rugae *nocturnus* Kohl.

Radial cell with one fleck.

Fleck triangular; pellucid area extending almost to juncture of apical and basal radius. Nervulus interstitial. Metapleura densely punctate. Propodeon reticulate and rugose . . . . . *samoana* Kohl.

Fleck twice as long as wide; pellucid area extending $\frac{2}{3}$ of basal radius. Propodeon coarsely reticulate. Metapleura with coarse, transverse rugae. Nervulus interstitial. Abdomen uniformly rufous . . . . *iaramus* sp. n.

Fleck triangular; pellucid area extending almost to juncture of apical and basal radius. Propodeon reticulate and rugose. Metapleura densely punctate. Nervulus interstitial . . . . . *pankumensis* sp. n.

Fleck triangular, length twice the width; pellucid area extending to $\frac{4}{5}$ of basal radius. Propodeon reticulate and rugose. Metapleura finely reticulate. Nervulus antefurcal . . . . . *rhoedae* sp. n.

Radial cell without a fleck.

Pellucid area small, length equals width, posterior margin not touching stigma, anterior margin faintly chitinised. Propodeon rugose and reticulate. Metapleura with transverse rugae. Nervulus strongly antefurcal. Entire insect black . . . . . *wenesubae* sp. n.

Mandibles wide, width at base 1½ base of teeth. Pellucid area small, width half its length. Propodeon with two carinae. Pleura unsculptured. Nervulus strongly antefurcal. Abdomen uniformly dark rufous . . . . *bakeri* sp. n.

Nototrachini.

Nototrachys taparilensis sp. n.

♀. Black. Antennae fuscous. Pale yellow as follows:—Face and orbits, scape of antennae, pronotum and extending laterally, two elongate maculae on mesonotum laterally in anterior half, and two very narrow stripes in the middle of posterior half; scutellum; three, large, round maculae on propodeon, the median extending from the centre to insertion of abdomen, two lateral immediately above the hind coxae; anterior margin and a macula at posterior, upper angle of propleura; a macula about the middle of anterior margin, and the speculum; upper division of metapleura; coxae and trochanters of fore legs; apical half of coxae and entire trochanters of middle legs; apex of coxae of hind legs. Shining. Face with sparse, shallow punctures. Frons carinate with fine, dense, transverse rugae, and three coarse reticulations near fore ocellus. Back of head rounded, minutely punctate with longish, silver, recumbent hair. Mesonotum coarsely reticulate laterally in anterior half and in the centre of posterior half, the reticulations drawn out transversely, lateral margins of posterior half rather sparsely but distinctly punctate. Scutellum sparsely punctate with coarse reticulations. Propodeon very coarsely reticulate with two smooth lateral areas at the base. Propleura irregularly transverse striate on the posterior half except the upper margins. Mesopleura reticulate on lower half, speculum and centre glabrous with a few, coarse striae immediately below fore-wing. Metapleura coarsely reticulate. Second recurrent nervure of fore-wing absent in one wing of the type, also of a ♂ paratype. In the latter there is a stump of the nervure on the basal nervure. Length 7 mm. Terebra 2 mm.

Banks Is., Vanua Lava, 1 ♀ (type), 1 ♂ (*in cop.*), xi.1929 (on bank of River Taparil). Malekula, Ounua, 1 ♂, v.1929. Erromanga, 1 ♂, vii.1930.

Allied to *australensis* Morl. (Queensland) and also to an undescribed species from Papua, but very distinct from both.

Anomalini.

Agrypon omabensis sp. n.

♂. Dark red-brown, mesonotum and abdomen fuscous. Face, continuing on cheeks and narrowly on orbits half the length of temples; a small macula at upper orbits; fore half of scape; fore and middle coxae and trochanters, yellow. Frons, vertex and back of head; teeth of mandibles; apical half of tibiae and 1st tarsal segment (except apex) of hind legs, black. Fore and middle femora, tibiae, and tarsi except apical segment; apex of 1st tarsal segment of hind leg, and 2nd to 4th segments, fulvous. Antennae fuscous. Hind coxae lighter on the underside. Shining, covered in short, silvery hair, longer on propodeon; on hind tibia and tarsi very dense, and fuscous. Face irregularly punctate, short striae radiating from base of antennae. Frons strongly carinate, with irregular, short longitudinal rugae, orbits punctate. Flagellum with 46 segments, 1st twice the length of 2nd. Mesonotum with dense rugged sculpture, rugulosely vermiculate, notauli absent. Scutellum and postscutellum densely reticulate, the former slightly wider than long. Propodeon with dense, coarse reticulations, and distinct lateral areas at the base. Propleura transverse reticulate. Mesopleura irregularly transverse rugose above and at posterior margin, coarsely reticulate at anterior margin, centre almost glabrous; mesosterna finely, regularly punctate. Metapleura coarsely reticulate. Hind coxae long, length more than twice the width. Length 23 mm.

♀. Mesopleura with glabrous area only in lower third, 5th and 6th abdominal tergites black dorsally. Flagellum with 47 segments.

Malekula, Lake Omav, 1 ♂ (type), v.1929; Ounua, 2 ♀♀, iv.1929; South West Bay, 1 ♂, i.1930.

Allied to *ferrugineum* Morl. (Queensland) and to an unnamed species from Papua, but distinct from either through the absence of notauli.

One ♀ from Banks Islands, Gaua, may be *ferrugineum*, but the yellow pattern does not extend over the upper apices of eyes, as in the holotype ♂ of Morley's species.

Pseudanomolon gracilis Szepl. 1905, *Gen. Ins.*, **34** : 33. (New Guinea.)

Malekula, Ounua, 1 ♂, ii.1929. Among herbage on bank of a stream; South West Bay, 2 ♀♀, ii.1930. In the forest, 1 ♂, i.1930. River bank, at night. Aneityum, 1 ♂, x.1930. Flying on river bank. Tanna, Ikiti, 1,000 ft., 1 ♂, x.1930. Sheltering under leaves, river bank at night.

Campoplegini.

Campoplex karkil sp. n.

♀. Black, covered with longish, silver-white hairs, longer and erect on the scutellum. Legs, with the exception of the middle and hind femora, dark brown, with shining, light-brown hairs; apex of front tibiae lighter. Labrum and upper half of mandibles, base of wings and a narrow line on the costa above, honey colour. Width of face equal to length; matt, densely, rather finely longitudinal reticulate. Mandibles with shallow, regular punctures. Clypeus granulate, irregularly punctate with a transverse series of coarse punctures at the margin. Malar space less than $\frac{1}{2}$ base of mandibles. Frons and back of eyes with minute punctures from which the silvery hairs spring. Mesonotum and scutellum densely rather finely punctate, the space between about the same width as the punctures. Propodeon with a pair of fine rugae springing medially from the basal margin and curving outwards and downwards half-way to the lateral angle, which is tubercularly produced; finely reticulate punctate above, transverse reticulate medially; the lower half of anterior area to the insertion of the abdomen, and the whole of the lateral areas finely, transverse rugose. Pleura shining; propleura with a few, irregular, longitudinal rugae in the sulcus, with fine, longitudinal rugae near the anterior margin, the remainder with short, curved rugae. Mesopleura strongly, regularly punctate, the punctures rather coarse, the space between about twice as wide as a puncture, short, oblique rugae above and in the sulcus of the speculum, which is faintly aciculate. Metapleura finely punctate above, fine, transverse rugae below with fine punctures between. Coxae minutely granulate with fine punctures. Petiole and abdomen alutaceous. Pecten of fore and middle claws with two teeth (hind tarsi missing). Areolet petiolate, the petiole about $\frac{1}{8}$ of 1st transverse nervure. Nervellus slightly angularly broken at its lower $\frac{1}{4}$, the vein very faintly traceable. Length 16 mm.

Tanna, Whitesands, 1 ♀, x.1930. Caught in the house on a window.

Allied to an undescribed species from Papua.

Zachresta lua sp. n.

♀. Yellow; black as follows :—teeth of mandibles, stemmaticum and a macula extending from it to back of head; wide, longitudinal stripe on centre of mesonotum extending from anterior margin to about $\frac{2}{3}$ of the length, lateral stripes united posteriorly; small macula on propodeon laterally at base; on abdominal tergites, fascia on 1st tergite just

below spiracles, on middle of 2nd, 2 maculae at base of 3rd, 4th immaculate, fascia at apical margin of 5th to 8th. Mesonotum and propodeon; scape of antennae; apex of hind tibiae, basal ⅓ of hind tarsi, and calcaria; abdomen except 1st segment, fulvous. Shining. Width of mandibles at base about ¾ base of teeth. Malar space slightly more than ½ base of mandibles. Face coarsely, strongly punctate, puncto-striate below the antennae. Frons with finer punctures; stemmaticum reticulate. Back of head with fine, sparse shallow punctures. Flagellum with 38 segments. Mesonotum finely, strongly reticulate, scutellum slightly longer than wide. Propodeon with median sulcus crenulate, laterally irregularly reticulate; lateral basal areas strongly defined, reticulations finer. Propleura with fine, oblique rugae, dense but irregular, mesopleura distinctly rather sparsely punctate. Metapleura transverse rugose, deeply punctate between the rugae.

♂ as ♀, flagellum with 40 segments, apically flattened.

Malekula, Ounua, 2 ♀♀, 1 ♂, iii., iv.1929. River Lua, 1 ♂ (type). Aneityum, Analgahaut, 1 ♀, 3 ♂♂, x.1930. All specimens taken flying by day near the coast, except one ♂, which was hunting on and under leaves of *Kleinhovia hospita*.

Efate, Vila, 1 ♀, 1922 (*T. T. Barnard*). Probably a variety of the above species, with darker coloration generally, and irregular fuscous maculae on propodeon and mesopleura.

Hymenobosmina iavilai sp. n.

♀. Black. Scape of antennae in front, mandibles except teeth, palpi, tegulae and base of wings, coxae and trochanters of anterior and middle pair of legs, yellow. Remainder of legs, and abdomen, fulvous. Matt; with coarse, longish, silvery hair which is shorter and sparser on the mesonotum. Face finely, densely punctate, back of the eyes with minute punctures. Flagellum with 28 segments. Malar space about half base of mandibles. Mesonotum densely, strongly, reticulate punctate on a granulate ground. Propodeon strongly reticulate punctate, areola basally acuminate, spiracles oval. Propleura with sulcus crenulate, the remainder transversely punctate striate. Meso- and metapleura finely, densely punctate, former with short striae around the speculum, which is aciculate and impunctate. 1st tarsal segment of hind legs 2⅓ the length of 2nd. Cubitus of forewing 1⅓ the length of 2nd transverse nervure. Nervulus slightly post-furcal. Nervellus unbroken. Length 4 mm.

Tanna, Mt. Tuquos-merra, 3,500 ft., 1 ♀, x.1930 (type). Malekula, South West Bay, 1 ♀, 1930. Beaten from fern.

PANISCINI.

Paniscus.

A character which I have found useful in separating species in this genus is the form of the laminate, free margin of the metapleura between the meso- and metacoxae, referred to in the text as the metapleural laminae.

Paniscus samoana Kohl, 1908, *Denkschr. Akad. Wiss. Wien*, **81** : 314.

I have not seen the type, but the material from the New Hebrides agrees with Kohl's description, and also with a series collected by Prof. P. A. Buxton and others in the Samoan Islands, including Upolu, the type locality (fig. 11).

N.E. Malekula, 1 ♂, v.1929. Santo, 1 ♀, viii.1929. Erromanga, 1 ♂, viii.1930. Tanna, 2 ♂♂, x.1930. Aneityum, 1 ♂, x.1930.

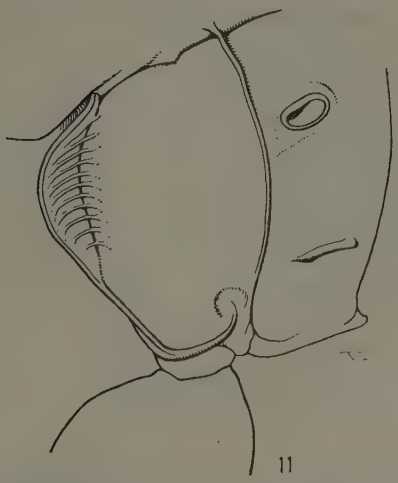

FIG. 11.—*Paniscus samoana* Kohl: lateral view of propodeon.

Paniscus samoana barnardi subsp. n.

Three specimens from the island of Efate differ from the typical form in coloration, being definitely lighter with more yellow and the face dull yellow. Efate, Vila, 3 ♂♂, ix.1922 (*T. T. Barnard*) (Brit. Mus.).

Paniscus woris sp. n.

♀. Dark rufous, with very irregular infuscations. Head dull yellow, face medially with blackish, longitudinal, broken stripes. Clypeus with a distinct, black macula medially

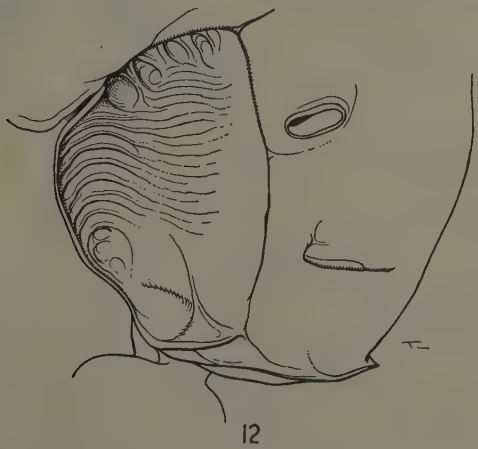

FIG. 12.—*Paniscus woris* sp. n.: lateral view of propodeon.

before the apical margin. Stemmaticum black, ocelli translucent. Flagellum, mandibles, claws and nervures of wings fuscous. Three apical abdominal tergites with black fasciae. Matt. Face finely, densely punctate medially. Malar space about ⅓ of base of mandibles.

Clypeus aciculate, with a few, coarse punctures and a median impression before the apical margin. Sides of face finely granulate. Antennae with 52 flagellar segments, length of 1st 1½ the 2nd, length of 2nd 3 times its width. Mesonotum densely punctate, the punctures fine and rather shallow; notauli distinct. Scutellum densely, finely punctate, lateral carinae united at apex and continued as short, branched rugae on the slope. Length 1½ width at base. Propodeon finely, densely transverse, rugose, the rugae curved in the upper half. Propleura densely longitudinal striate, sulcus narrowly glabrous, upper angle minutely punctate. Mesopleura finely, densely punctate, speculum with minute punctures. Metapleura densely transverse rugose, the rugae fine, originating on the laminae, distinct, with shallow punctures between, except at upper third, the lamina wide for half its length (fig. 12). Length of areolet about half its width. Nervulus bowed outwards. Nervellus angularly broken at the upper third. Length 17 mm.

Erromanga, Umbonaliamtongi, 1 ♀, vii.1930. At light. Named after high-chief Woris.

Near *samoana* Kohl, but distinguished by the less strongly post-furcal nervulus, as well as differences in colour and size.

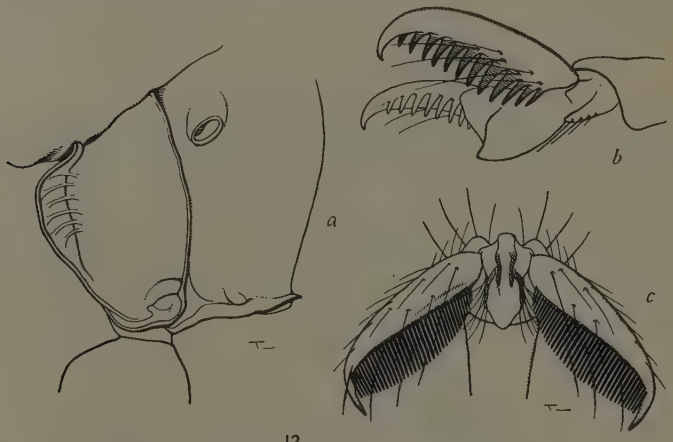

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Fig. 13.—(*a*) lateral view of propodeon of *Paniscus ehilis* sp. n.; (*c*) pecten of claw, *P. ehilis* sp. n.; (*b*) pecten of *Paniscus tamis* sp. n.

Paniscus ehilis sp. n.

♀. Testaceous. Head dull yellow. Mesonotum with fuscous, reticulate lines on apical half of lateral lobes. Stemmaticum black; ocelli translucent. Flagellum, teeth of mandibles, claws, anterior tarsi, costa of wings, and a sinuate line at base of metapleural lamina, fuscous. Matt. Face finely, rather densely punctate, buccate medially. Clypeus sparsely punctate, antennae with 46 segments. Mesonotum densely, minutely punctate; notauli distinct anteriorly. Scutellum densely, finely punctate, with a few short, longitudinal striae at the apex; lateral carinae not united but diverging at apex. Length 1⅓ width at base. Propodeon densely, finely transverse striate, the striae slightly curved in the upper half. Propleura very finely, densely longitudinal striate, the upper angle minutely punctate. Metapleura finely transverse striate, laminae incrassate in posterior half (fig. 13 *a*). Length of areolet half its width. Nervulus slightly bowed. Nervellus broken a little above the upper third. Length 11 mm.

♂. Head flavous. Ocelli piceous, face medially suffused with fulvous. Propleura with a wider area striate. Striae of propodeon rather coarser. Pectens extremely large, the teeth fine, and so dense as scarcely to be separable (fig. 13 *c*).

This peculiar type of pecten does not appear to be mentioned in any description of other species of *Paniscus* (cf. fig. 13 *b* and *c*). Kasauli, Punjab (locality of second specimen not given) both collected by Col. Bingham.

Erromanga, 1 ♀ (type), vii.1930; at light. Aneityum, 1 ♂, x.1930; beaten from clearing near shore.

Near *woris* but the surface sculpture finer and more indistinct generally. Separated by the punctate cheeks, as well as absence of black infuscations.

Paniscus gracilis Morley, 1913, *Rev. Ichneum.*, **2** : 125.

Erromanga, Umbonaliamtongi, 1 ♀, vii.1930; small creek on tableland; by sweeping.

Paniscus tamis sp. n.

♂. Testaceous, with irregular infuscations, anterior tarsi and abdomen fuscous testaceous. Face dull yellow with two pairs of faint, fuscous longitudinal stripes; an outer pair ex-

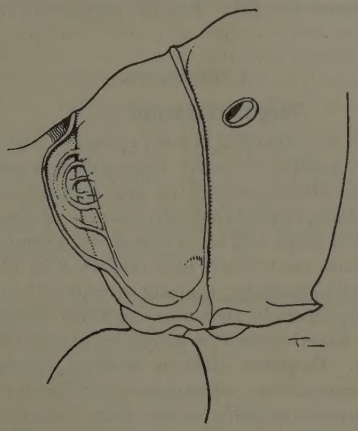

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Fig. 14.—*Paniscus tamis* sp. n.: lateral view of propodeon.

tending from base of antennae to clypeal fovea, and an inner pair uniting at the median tubercle. Stemmaticum and ocelli piceous. Mesonotum with a longitudinal, fuscous stripe. Nervures of wings pale brown. Shining. Face matt, finely punctate, with larger sparse punctures on the clypeus. Antennae with 49 segments. Mesonotum minutely punctate. Scutellum with a faint, median, longitudinal impression, and a few minute punctures, lateral carinae branched at the apex but not united. Propodeon transverse striate, the striae distinct though fine, basally finer and mixed with minute, shallow punctures. Propleura finely, longitudinal striate in the sulcus and at anterior margin, striae in the sulcus irregularly broken, upper angle minutely punctate. Mesopleura with fine, distinct punctures. Metapleura with finer, shallower punctures, laminae incrassate (fig. 14). Teeth of pectens not extremely dense and fine (fig. 13 *b*). Areolet narrow, length less than half width. Nervellus broken at upper third.

Near *gracilis* Morl., but distinguished by wider face, more distinct punctura-

tion of metapleura, and by nervellus, which in *gracilis* is broken above the upper third.

S.W. Malekula, Leortamismuch, 1 ♂, i.1930.

Key to Species of Paniscus.

♀♀.

Metapleura densely, strongly punctate with fine, transverse rugae. Nervulus very strongly post-furcal. Lateral carinae of scutellum not united at apex *samoana* Kohl.

Metapleura transverse striate with fine punctures in the upper third, indistinctly striate at posterior margin. Clypeus medially impressed before the margin, with a black macula. Lateral carinae of scutellum united at apex *woris* sp. n.

Metapleura finely transverse striate with sparse fine, shallow punctures in upper angle. Clypeus not impressed. Lateral carinae of scutellum not united at apex . . . . . *ehilis* sp. n.

Metapleura weakly, finely punctate. Clypeus slightly emarginate apically. Scutellum strongly carinate to lower margin . . . . . *gracilis* Cam.

Metapleura distinctly, not densely punctate. Face slightly longer than wide. Apical margin of clypeus straight. Lateral carinae of scutellum branched apically, not united . . . . . *tamis* sp. n.

CREMASTINI.

Tarytia maluensis sp. n.

♂. Yellow. Stemmaticum, extending in front almost to base of antennae, and macula on underside of head not meeting in front; propodeon and metapleura, black. Broad longitudinal stripe on mesonotum; petiole; 1st abd. segment, fasciae at the base of 2nd to 4th segments, and remaining segments entirely, fuscous. Antennae; lateral longitudinal on mesonotum, long central stripe and small macula on central lobe; triangular macula at upper part of mesopleura, red-brown. Legs fulvous, back of posterior coxae, femora and tibiae darker. Minutely granulate; sparsely covered with longish, pale hairs. Mesonotum and scutellum finely, sparsely punctate; scutellum longer than wide. Propodeon with areola long, closed; lateral areas with sparse, fine, longitudinal striae; petiolar area finely, transverse striate. Propleura glabrous medially, finely punctate at posterior margin. Mesopleura glabrous above; sulcus crenulate in the anterior half; finely punctate below. Second tarsal segment of posterior legs more than half the length of the 1st. Second recurrent nervure post-furcal; cubitus about two-thirds the length of 1st transverse nervure. Nervulus interstitial. First abscissa of basal radius slightly more than half the length of 2nd abscissa. Length 4 mm.

Malekula, Malua Bay, 1 ♂ (type), vii.29; Malua Bay, 1 ♂, vii.1929; N.W. Malekula, 1 ♂, i.1930.

Cremastus maluensis sp. n.

♂. Pale yellow, with short, sparse silvery hair, longer on abdomen. Legs pale brown. Black as follows:—teeth and upper margin of mandibles; stemmaticum, and a broad fascia extending outwards from the base to half the underside of head; scutellar foveae of frena; propodeon; petiole, and 1st abdominal segment except apical margin. Fuscous markings as follows:—antennae, three longitudinal stripes on mesonotum, the central darker; upper half of mesopleura, suffusion on mesosternum; apically on 1st abdominal segment, broadly at base of 2nd and 3rd segments, the remainder of abdomen entirely; posterior coxae basally behind, posterior femora and tibiae. Stigma and nervures pale fuscous. Matt: head and thorax minutely granulate, the head with a few punctures,

shallow and indistinct. Mesothorax finely, rather densely punctate; scutellum with sparse, shallow punctures. Areola of propodeon about as wide as long. Propleura shining; mesopleura minutely punctate, the transverse sulcus not crenulate. Petiole and 1st abdominal segment longitudinally aciculate, the latter regularly: the remaining segments with minute punctures from which the hairs spring. Second abscissa of basal radius in the fore-wing slightly sinuate. Length of 2nd transverse nervure about $1\frac{1}{2}$ that of the cubitus. Nervulus interstitial. Nervellus indistinctly broken below the middle. Length 4 mm.

Malekula, Malua Bay, 1 ♂ (type), vii.1929; Malua Bay, 1 ♂, vii.1929; coast, flying. 1 specimen (abdomen missing), Malekula, i.1930, of paler coloration, probably belongs to this species.

STEPHANIDAE.

Foenotopus unistriatus sp. n.

♀. Black. Head very dark brown. Cream stripe below the eyes extending from base of mandibles to $\frac{4}{5}$ the length of eyes (seen from the side). Face transverse rugose in the centre, the rugae zigzag, continued laterally slanting upwards to the orbits; back of head finely, densely, transverse striate, the striae curving upwards laterally, radiating from a median sulcus; underside of head shining. Length of 1st segment of flagellum $1\frac{1}{3}$ the 2nd. Anterior half of pronotum transverse striate, remainder aciculate with a few punctures near posterior margin. Mesonotum very coarsely and very irregularly transverse rugose anteriorly, and a few, short, coarse rugae in the centre. Scutellum shining, marginal sulci deeply crenulate, and a few, coarse punctures near the anterior margins. Propodeon coarsely reticulate. Petiole slightly longer than abdomen; finely, densely, transverse rugose. Terebra $1\frac{1}{3}$ the length of abdomen and petiole together. Mesopleura aciculate with very sparse, shallow punctures and on sterna, except posteriorly. Median nervure of fore-wing beyond the median cell represented only by a stump, but the remainder of 1st discoidal and cubital cells faintly indicated (fig. 15).

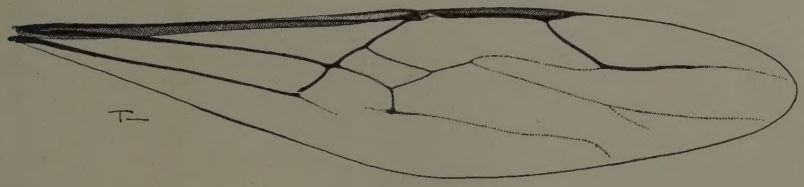

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FIG. 15.—*Foenotopus unistriatus* sp. n.: fore-wing.

Malekula, Ounua, 1 ♀ (type), 2 ♀♀, iv.1929; South West Bay, 4 ♀♀, i.1930. Crawling over posts of (?) *Croton*.

In wing neuration and surface sculpture this species is near *longicollis* Cam. (Borneo); the colour of the head in *unicarinatus* is different, and the neuration of 1st discoidal complete.

Diastephanus salomonis Westw. (1874, *Thesaur. ent. Oxon*: 128) is recorded from the New Hebrides, but the type (Brit. Mus.) is labelled " ? Australia, Solomon Is., New Hebrides." Since there is no further material of this species from the New Hebrides, but it has been taken again in the Solomon Islands, it probably does not occur in the former group.